

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Service Rules and Procedures to)	
Govern the Use of Aeronautical Mobile)	
Satellite Service Earth Stations)	IB Docket No. 05-20
in Frequency Bands Allocated to the)	
Fixed Satellite Service)	

COMMENTS OF PANAMSAT CORPORATION

PanAmSat Corporation ("PanAmSat"), by its attorneys, hereby comments on the Notice of Proposed Rulemaking ("NPRM") in the above-captioned rulemaking.¹

1. Protection of a Receive Aircraft Earth Station (AES)

The NPRM addresses the issue of the level of protection that should be afforded on the receive side to an aircraft earth station ("AES"). In its petition for rulemaking, Boeing proposed that "AMSS operations in the 11.7-12.2 GHz band continue to be authorized on a non-conforming use (*i.e.*, non-protected) basis". In particular, Boeing had argued "that AMSS downlinks can operate effectively on an unprotected basis because AES receivers must be designed to tolerate the 'noise' generated by other operations in the band."²

PanAmSat agrees with Boeing that AES receivers can and should be designed taking into account the interference environment in which they will operate. AES operators have full knowledge of that environment, because the Commission's rules set forth in detail the technical parameters that apply to FSS earth stations. Moreover, the operators of satellites hosting AMSS services will inform AES operators of any special conditions that have been agreed upon in

¹ FCC 05-14 (Feb. 9, 2005).

² See ¶ 17 of the NPRM.

coordination with adjacent satellite operators. In view of the above, PanAmSat supports operation on a “non-protected basis” as previously proposed by Boeing.

In the NPRM, the Commission tentatively concluded that AMSS stations in the 11.7-12.2 GHz band should operate on a secondary or non-protected basis.³ The Commission proposed a new footnote for the Table of Frequency Allocations, however, that would do precisely the opposite. The proposed footnote reads as follows:

“NGyyy In the bands 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space), aircraft earth stations in the aeronautical mobile-satellite service are an application of the Fixed-Satellite Service (FSS). The provisions of ITU Radio Regulations Nos. 5.29, 5.30 and 5.31 apply, except that reception from geostationary space stations in the fixed-satellite service in the 11.7-12.2 GHz shall be protected in the United States on a primary basis, provided that the aircraft earth stations operate under the same parameters as earth stations in the fixed-satellite service.”

PanAmSat opposes adoption of the proposed footnote. By providing a “primary” allocation for AES terminals in the 11.7-12.2 GHz band, the footnote would give more protection to those terminals than the principal proponent of AMSS services has stated is necessary and than the Commission, in the NRPM, tentatively has concluded is necessary.⁴

As the Commission has recognized, moreover, “AES terminals are a mobile application of FSS technology and, therefore, have a higher potential for creating interference to terrestrial and space systems than other FSS applications operating in the same frequencies”⁵. The fact that AES terminals are a mobile application also means that they will be more susceptible to receiving interference. Affording primary protection to AES terminals, therefore, would lead to uncertainties for adjacent satellite operators and would constrain

³ See ¶¶ 16-17 of the NPRM.

⁴ See ¶ 31 of the NPRM. PanAmSat recognizes that the primary status granted in the proposed footnote is limited to “earth stations operate under the same parameters as earth stations in the fixed-satellite service.” PanAmSat fears, however, that this language would, in cases in which interference became an issue, open the door to protracted debates as to whether particular AES terminals were, in fact, operating on that basis.

⁵ See ¶ 56 of the NPRM.

their operations. For all of these reasons, AES terminals only should be permitted to operate on a non-protected basis in the 11.7-12.2 GHz band.

2. Off-Axis EIRP Limits and Pointing Accuracy

PanAmSat supports the off-axis EIRP density limits proposed by the Commission in the NPRM⁶. PanAmSat views as critical the Commission's further proposal that these EIRP density limits start at 1°. Although PanAmSat also supports the pointing accuracy requirements that the Commission has proposed,⁷ it is of the view that setting the starting angle at 1° provides needed additional assurance that adjacent satellites will be adequately protected.

3. Coordinating Power Levels in Excess of the Off-Axis EIRP Density Limit

The Commission has asked whether it should consider granting any AMSS application for a system that exceeds the proposed EIRP density levels⁸. Boeing proposes that Ku-band ESVs be permitted to operate with power levels that exceed the Commission's off-axis EIRP density limit if the power levels have been coordinated with adjacent satellite operators. PanAmSat agrees with Boeing in principle, but suggests certain refinements to Boeing's proposed approach.

If the target satellite is not U.S.-licensed, then (as Boeing has proposed) the applicant should be required to provide a certification from the operator of the target satellite to the effect that the required coordination agreements are in place.

If the target satellite is U.S.-licensed, then the satellite networks with which coordination is required could be either U.S.-licensed or foreign-licensed. If the network is foreign-licensed, then a coordination agreement permitting the higher EIRP density levels may already be in place. The certification procedure proposed by Boeing may expedite matters in these circumstances, because it

⁶ See ¶ 35 of the NPRM.

⁷ See ¶ 41 of the NPRM.

⁸ See ¶ 40 of the NPRM.

eliminates the need for a new contact between the two operators. Accordingly, PanAmSat supports Boeing's proposal for a certification procedure in cases in which the target satellite is U.S.-licensed and the satellite network that has been coordinated with is foreign-licensed.

PanAmSat disagrees with Boeing's approach, however, for cases in which both the target satellite and the adjacent satellite are U.S.-licensed. U.S. operators generally address services that are not two-degree compliant on a case-by-case basis. Therefore, if two U.S.-licensed operators are involved, it is unlikely that a coordination agreement addressing excess EIRP density levels will be in place. If there is no coordination agreement in place, a certification that only the operator of the target satellite has signed will be of no benefit. Accordingly, whenever the required coordination involves two U.S.-licensed satellites, such certification document should be signed by both the target satellite operator and the adjacent satellite operator. Requiring both signatures in such cases also has the added benefit of ensuring that U.S.-licensed operators have up-to-date information concerning the interference environment in which they are operating.

4. ALSAT Authority

In the NPRM, the Commission sought comment as to whether Ku-band AMSS stations should be permitted to operate on an "ALSAT" basis with U.S.-licensed space stations and space stations that are on the Permitted Space Station List.⁹ PanAmSat opposes ALSAT operation for AMSS stations, and believes that such stations only should be authorized on a slot-specific basis.

As the Commission recognizes in the NPRM, granting ALSAT authority for earth stations that exceed the off-axis EIRP limits would be inconsistent with the fact that higher power levels must be coordinated with the operators of adjacent satellite networks.¹⁰ Even in cases in which AMSS terminals satisfy the prescribed EIRP limits licenses, however, ALSAT authority would be ill advised.

⁹ See ¶ 51 of the NPRM.

¹⁰ See ¶ 51 of the NPRM.

AMSS services, unlike traditional fixed satellite services, are new and have a limited track record. It remains to be seen whether paper proposals by AMSS operators for taking on the complex task of managing the power levels produced by large numbers of AMSS terminals will translate in practice into a reliable interference environment. In this early phase of AMSS existence, therefore, an extra degree of caution is warranted.

5. Tracking of AES Terminals

PanAmSat supports the Commission's proposal to require that AMSS operators track AES operations, keep the tracking data on file for a one-year period, and make the data available to interested parties, including FSS operators, within 24 hours of a request.¹¹ In the FSS industry, locating interference sources is an extremely costly aspect of everyday operations, and the most difficult sources of interference to track are those, such as AES terminals, that are mobile and transmit intermittently. Giving FSS operators access to precise aircraft location and frequency information will facilitate interference resolution and will obviate the need, when interference occurs, for the FSS operators to search for an AES needle in the haystack of space. Having accurate information about the inner workings of AMSS also may assist the Commission in refining its rules as AMSS becomes more established and develops a track record.

PanAmSat believes that a second kind of tracking also should be required. The AES tracking proposed in the NPRM is best described as "active tracking" in the sense that it tracks AES terminals that are actively used. There is another dimension to tracking AES terminals which was not described in the NPRM, "passive tracking," which means maintaining an accurate database of all installed AES terminals, whether these terminals are in active use or not.

It is important that AMSS operators keep in place a full inventory of AES terminals - active and inactive - for interference detection purposes. This information, like active tracking information, should be made available to FSS

¹¹ See ¶ 54 of the NPRM.

operators upon request. Maintaining a full inventory will ensure that AES operators do not lose track of AES terminals that are temporarily not in use. If an AES terminal were to become “lost” when not in use (e.g., if an aircraft fitted with the AES terminal were sold to another carrier that did not subscribe to AMSS), then active tracking might not account for the terminal properly should it malfunction or unexpectedly resume transmission. Accordingly, active tracking and passive tracking both play an important role in interference detection.

6. Regulation of AMSS Operation Based on Aircraft Country of Registry

PanAmSat supports the Commission’s proposal to require that operators of AES terminals on U.S. registered aircraft designate a 24 hour point of contact within the United States who will have the capability and authority to cause the operator’s AES terminals to cease transmitting.¹²

The Commission also sought comment as to whether it should develop rules governing AES communications via foreign-registered aircraft that are traveling through U.S. airspace.¹³ The country in which an aircraft is registered has no bearing on the potential for an AES terminal to generate interference. Accordingly, the rules that the Commission adopts for AMSS operations in this proceeding should apply to all AMSS operators while in U.S. airspace, without regard to the country of aircraft registry, the country in which an AMSS system is based, or the country in which an AMSS system is licensed.

PanAmSat, therefore, supports the Commission’s proposal to require that the operator of an AES terminal located on a foreign-registered aircraft secure FCC authority covering operations in U.S. airspace.¹⁴ PanAmSat also supports the Commission’s proposal to require that an AMSS operator using a U.S. hub to communicate with non-U.S. licensed AES terminals on foreign-registered aircrafts be responsible for ensuring that the operation of the AES terminals

¹² See ¶ 57 of the NPRM.

¹³ See ¶ 60 of the NPRM.

¹⁴ See ¶ 61 of the NPRM.

comply with all the FCC rules.¹⁵ Finally, PanAmSat supports the Commission's proposals for regulating foreign-based and foreign-licensed AMSS systems.¹⁶

Respectfully submitted,

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¹⁵ See ¶ 64 of the NPRM.

¹⁶ See ¶¶ 65-67 of the NPRM.